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ABSTRACT

This bill was presented before the Congress of the United States of America to amend the Elementary and Secondary Education Act of 1965. One section in the amendment focuses on improving basic programs operated by local educational agencies, and covers the activities and applications of the Eisenhower National Clearinghouse (ENC). This document also reports on decisions regarding the summer professional development institutions and requirements of the National Science Foundation (NSF). (YDS)

106TH CONGRESS
2D SESSION

H. R. 4272

To amend the Elementary and Secondary Education Act of 1965 to establish and expand programs relating to science, mathematics, engineering, and technology education, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 13, 2000

Mr. EHLERS (for himself, Mrs. BIGGERT, Mr. BOEHLERT, Mr. BRADY of Texas, Mr. COOK, Mr. GILCHREST, Mr. GILMAN, Mr. HOLT, Mr. JENKINS, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. KUYKENDALL, Mr. PORTER, Mrs. ROUKEMA, Mr. SMITH of Michigan, Mr. SWEENEY, Mr. UPTON, and Mrs. WILSON) introduced the following bill; which was referred to the Committee on Education and the Workforce

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A BILL

To amend the Elementary and Secondary Education Act of 1965 to establish and expand programs relating to science, mathematics, engineering, and technology education, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Science Education Enhancement Act".

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

SEC. 2. FINDINGS.

The Congress finds the following:

(1) As concluded in the report of the Committee on Science of the House of Representatives, "Unlocking Our Future Toward a New National Science Policy," which was adopted by the House of Representatives, the United States must maintain and improve its preeminent position in science and technology in order to advance human understanding of the universe and all it contains, and to improve the lives, health, and freedoms of all people.

(2) It is estimated that more than half of the economic growth of the United States today results directly from research and development in science

and technology. The most fundamental research is responsible for investigating our perceived universe, to extend our observations to the outer limits of what our minds and methods can achieve, and to seek answers to questions that have never been asked before. Applied research continues the process by applying the answers from basic science to the problems faced by individuals, organizations, and governments in the everyday activities that make our lives more livable. The scientific-technological sector of our economy, which has driven our recent economic boom and led the United States to the longest period of prosperity in history, is fueled by the work and discoveries of the scientific community.

(3) The effectiveness of the United States in maintaining this economic growth will be largely determined by the intellectual capital of the United States. Education is critical to developing this resource.

(4) The education program of the United States needs to provide for 3 different kinds of intellectual capital. First, it needs scientists and engineers to continue the research and development that is central to the economic growth of the United States. Second, it needs technologically proficient workers

who are comfortable and capable dealing with the demands of a science-based, high-technology workplace. Last, it needs scientifically literate voters and consumers to make intelligent decisions about public policy.

(5) Student performance on the recent Third International Math and Science Study highlights the shortcomings of current K–12 science and mathematics education in the United States, particularly when compared to other countries. We must expect more from our Nation's educators and students if we are to build on the accomplishments of previous generations. New methods of teaching mathematics and science are required, as well as better curricula and improved training of teachers.

(6) Science is more than a collection of facts, theories, and results. It is a process of inquiry built upon observations and data that leads to a way of knowing and explaining in logically derived concepts and theories.

(7) Students should learn science primarily by doing science. Science education ought to reflect the scientific process and be object-oriented, experiment-centered, and concept-based.

(8) Children are naturally curious and inquisitive. To successfully tap into these innate qualities, education in science must begin at an early age and continue throughout the entire school experience.

(9) Teachers provide the essential connection between students and the content they are learning. High-quality prospective teachers need to be identified and recruited by presenting to them a career that is respected by their peers, is financially and intellectually rewarding, and contains sufficient opportunities for advancement.

(10) Teachers need to have incentives to remain in the classroom and improve their practice, and training of teachers is essential if the results are to be good. Teachers need to be knowledgeable of their content area, of their curriculum, of up-to-date research in teaching and learning, and of techniques that can be used to connect that information to their students in their classroom.

SEC. 3. ASSURANCE OF CONTINUED LOCAL CONTROL.

Nothing in this Act may be construed to authorize any department, agency, officer, or employee of the United States to exercise any direction, supervision, or control over the curriculum, program of instruction, administra-

tion, or personnel of any educational institution or school system.

TITLE I—AMENDMENTS TO THE ELEMENTARY AND SECONDARY EDUCATION ACT OF 1965

SEC. 101. SUPPORT FOR MENTORING ACTIVITIES FOR SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY TEACHERS.

(a) IMPROVING BASIC PROGRAMS OPERATED BY LOCAL EDUCATIONAL AGENCIES THROUGH PROFESSIONAL DEVELOPMENT.—Section 1119(b)(1) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6301(b)(1)) is amended—

(1) by striking "and" at the end of subparagraph (D);

(2) by striking the period at the end of subparagraph (E) and inserting "; and"; and

(3) by adding at the end the following:

"(F) include mentoring programs focusing on changing science, mathematics, engineering, and technology teacher behaviors and practices to help novice teachers develop and gain confidence in their skills, to increase the likelihood that they will continue in the teaching profes-

sion, and generally to improve the quality of their teaching.''.

(b) DISSEMINATION OF MENTORING INFORMATION BY EISENHOWER NATIONAL CLEARINGHOUSE.—Section 2102(a)(3)(C) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6622(a)(3)(C)) is amended by striking ''materials'' and inserting ''materials, including information on model science, mathematics, engineering, and technology teacher mentoring programs,''.

(c) EISENHOWER PROFESSIONAL DEVELOPMENT PROGRAM STATE APPLICATIONS.—Section 2205(b)(2) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6645(b)(2)) is amended—

(1) by striking ''and'' at the end of subparagraph (N);

(2) by striking the period at the end of subparagraph (O) and inserting ''; and''; and

(3) by adding at the end the following:

''(P) describe how the State will administer a mentoring system to ensure consistent implementation of mentoring programs for science, mathematics, engineering, and technology teachers, provide a structure for local mentoring program evaluation, provide technical assistance to local mentoring programs, ensure

compliance by local mentoring programs with State teacher training requirements, and provide incentives for local educational agencies to take mentoring into consideration in assessing instructional staff hiring needs.".

(d) EISENHOWER PROFESSIONAL DEVELOPMENT PROGRAM LOCAL ACTIVITIES.—Section 2210(b)(2) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6650(b)(2)) is amended—

(1) by striking "and" at the end of subparagraph (D);

(2) by striking the period at the end of subparagraph (E) and inserting "; and"; and

(3) by adding at the end the following:

"(F) include mentoring programs focusing on changing science, mathematics, engineering, and technology teacher behaviors and practices to help novice teachers develop and gain confidence in their skills, to increase the likelihood that they will continue in the teaching profession, and generally to improve the quality of their teaching.".

(e) ACCOUNTABILITY.—Section 2401(a) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6701(a)) is amended by striking "part." and inserting

"part, including the impact of State and local mentoring programs on teaching quality and teacher retention rates.".

SEC. 102. EXPANSION OF EISENHOWER NATIONAL CLEARINGHOUSE.

(a) ALLOCATION OF APPROPRIATED AMOUNTS.—Section 2003(b)(1) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6603(b)(1)) is amended by striking "2103;" and inserting "2103, and $10,000,000 shall be available to carry out subparagraphs (A), (F), and (G) of section 2102(b)(3);".

(b) USE OF FUNDS.—Section 2102(b)(3) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6622(b)(3)) is amended—

(1) in subparagraph (A), by striking "(including, to the extent practicable," and inserting "(including";

(2) in subparagraph (E), by striking "and" at the end;

(3) by amending subparagraph (F) to read as follows:

"(F) solicit and gather (in consultation with the Department, national teacher associations, professional associations, and other reviewers and developers of education materials

and programs) all qualitative and evaluative materials and all programs, including full text and graphics, for the Clearinghouse, review the evaluation of the materials and programs, rank the effectiveness of the materials and programs on the basis of the evaluations, and distribute the results of the reviews (in a short, standardized, and electronic format that contains electronic links to an electronic version of the original qualitative and evaluative materials), excerpts of the materials and links to Internet-based sites, and information regarding on-line communities of users to teachers in an easily accessible manner, except that nothing in this subparagraph shall be construed to permit the Clearinghouse to directly conduct an evaluation of the materials or programs; and"; and

(4) by adding at the end the following:

"(G) develop and establish an Internet-based site offering a search mechanism to assist site visitors in identifying information available through the Clearinghouse on science, mathematics, engineering, and technology education instructional materials and programs, including electronic links to information on classroom

demonstrations and experiments, teachers who have used materials or participated in programs, vendors, curricula, and textbooks.".

(c) CLEARINGHOUSE.—Section 2102(b) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6622(b)) is amended by adding at the end the following:

"(9) EFFECTIVE USE OF TECHNOLOGY.—In reviewing evaluations of materials and programs under this subsection the Clearinghouse shall give particular attention to the effective use of materials and technology in science, mathematics, engineering, and technology education.".

(d) REPORT.—Not later than two years after the date of the enactment of this Act, the National Academy of Sciences, in conjunction with appropriate related associations and organizations, shall—

(1) conduct a study on the Eisenhower National Clearinghouse and whether the provisions enacted in the amendments made by this section have resulted in the Clearinghouse becoming a more effective entity; and

(2) submit to Congress a report on the study, including any recommendations of the Academy regarding the Clearinghouse.

SEC. 103. SUMMER PROFESSIONAL DEVELOPMENT INSTITUTES.

(a) IN GENERAL.—Section 2211 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6651) is amended by adding at the end the following:

"(d) SUMMER PROFESSIONAL DEVELOPMENT INSTITUTES FOR TEACHERS.—

"(1) PROGRAM AUTHORIZED.—From amounts made available to carry out this subsection, the Secretary is authorized to make grants to State agencies for higher education, working in conjunction with the State educational agency (if such agencies are separate), for activities described in paragraph (3). Such grants shall be awarded on a competitive basis that includes a peer review of the grant applications.

"(2) SUBGRANTS.—

"(A) IN GENERAL.—A recipient of a grant under paragraph (1) shall carry out the activities described in paragraph (3) by making subgrants to, or entering into contracts or cooperative agreements with, institutions of higher education, and nonprofit organizations of demonstrated effectiveness, including museums and educational partnership organizations, which must work in conjunction with a local edu-

cational agency, consortium of local educational agencies, or schools.

"(B) PRIORITY.—In making awards under subparagraph (A), a grant recipient shall give priority to applicants whose application includes an assurance that the applicant will use a curriculum recognized by the working group established under section 17 of the National Science Foundation Act of 1950, particularly if the local educational agency (or agencies) described in subparagraph (A), or the State educational agency (if such agency is separate from the grant recipient), has adopted such curriculum.

"(3) ALLOWABLE ACTIVITIES.—

"(A) IN GENERAL.—Each recipient of funds under paragraph (2) shall use the funds for the following:

"(i) The establishment and operation of science, mathematics, engineering, and technology summer institutes that provide professional development to elementary and secondary school teachers. Such institutes shall be content-based, build on school year curricula, and focus only secondarily on pedagogy.

"(ii) To provide teachers with travel expense reimbursement, a stipend, or classroom materials related to such an institute.

"(iii) The establishment of a mechanism to provide supplemental assistance and follow up training during the school year for summer institute graduates.

"(B) REQUIREMENTS FOR CURRICULA.—The curricula referred to in subparagraph (A)(i) shall be object-centered, experiment-oriented, content-based, and grounded in current research.

"(C) REQUIREMENTS FOR INSTITUTES.—The summer institutes referred to in subparagraph (A)(i)—

"(i) shall be conducted during a period of a minimum of two weeks;

"(ii) shall provide for direct interaction between students and faculty;

"(iii) shall have a component that includes use of the Internet; and

"(iv) shall provide for follow-up training in the classroom during the academic year for a period of a minimum of three

days, which shall not be required to be consecutive, except that—

"(I) if the program at the summer institute is for a period of only two weeks, the follow-up training shall be for a period of more than 3 days; and

"(II) for teachers in rural school districts, follow-up training through the Internet may be used.

"(4) REVIEW OF APPLICATIONS BY NATIONAL SCIENCE FOUNDATION.—The Secretary shall provide each application for a grant under this subsection to the Director of the National Science Foundation in order that such applications may undergo the peer-review process described in paragraph (5)(B), and shall implement the recommendations of the Director in awarding grants under this subsection.

"(5) REQUIREMENTS ON NATIONAL SCIENCE FOUNDATION.—

"(A) IN GENERAL.—Each year, not later than 6 months before the application deadline for a subgrant, contract, or cooperative agreement described in paragraph (2), the Director of the National Science Foundation shall de-

velop a theme and structure for the summer institutes supported under this subsection. Such applications shall address how funds will be used in accordance with the theme and structure developed by the Director.

"(B) APPLICATION PEER-REVIEW PROCESS.—The Director—

"(i) shall establish a peer-review process for applications for grants received under this subsection; and

"(ii) shall forward the applications selected by the Director through such process to the Secretary.

"(C) PRIORITY.—In making awards under paragraph (2)(A), a grant recipient shall give priority to applicants whose application includes an assurance that the applicant will use a curriculum—

"(i) that is recognized by the working group established under section 17 of the National Science Foundation Act of 1950, particularly if the local educational agency (or agencies) described in paragraph (2)(A), or the State educational agency (if

such agency is separate from the grant recipient), has adopted such curriculum; or

"(ii) that is three or four weeks in length.

"(6) OTHER REQUIREMENTS.—Paragraphs (2), (3), and (4) of subsection (a), and subsection (c), shall apply to recipients of funds under this subsection in the same manner as such provisions apply to recipients of funds under subsection (a)(1).

"(7) CREDIT FOR PARTICIPATION.—Participation in an institute supported under this subsection shall earn credit toward—

"(A) State continuing education requirements for teachers; or

"(B) a post-baccalaureate degree program at an institution of higher education.".

(b) FUNDING.—

(1) ALLOCATION OF APPROPRIATED AMOUNTS.—Section 2003(b)(2) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6603(b)(2)) is amended by striking "B;" and inserting "B, of which $100,000,000, $150,000,000, $200,000,000, and $200,000,000 shall be available to carry out section 2211(d) for fiscal years 2001, 2002, 2003, and 2004, respectively;".

(2) RESERVATION OF FUNDS.—Section 2202(a) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6642(a)) is amended—

(A) in paragraph (1), by striking "and";

(B) in paragraph (2), by striking the period at the end and inserting "; and"; and

(C) by adding at the end the following:

"(3) the amount made available under section 2003(b)(2) to carry out section 2211(d).".

SEC. 104. GRANTS FOR TEACHER TECHNOLOGY TRAINING SOFTWARE AND INSTRUCTIONAL MATERIALS.

Section 3134 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6844) is amended—

(1) in paragraph (5), by striking "and" at the end;

(2) in paragraph (6), by striking the period at the end and inserting "; and"; and

(3) by adding at the end the following:

"(7) providing technology training software and instructional materials to teachers.".

SEC. 105. RESERVATION FOR AFTER-SCHOOL ACTIVITIES.

Section 10904(a) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8244) is amended—

(1) by striking "and" after the semicolon in paragraph (2);

(2) by striking the period at the end of paragraph (3) and inserting "; and"; and

(3) by adding at the end the following:

"(4) an assurance that if awarded a grant under this part, the grant recipient shall use not less than 5 percent of the amount received to provide after-school day care services that focus on science activities.".

SEC. 106. AFTER-SCHOOL SCIENCE DAY CARE AT COMMUNITY LEARNING CENTERS.

Section 10905(3) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8245(3)) is amended by striking "services." and inserting "services, including after-school day care services that focus on science activities for children in grades kindergarten through the sixth grade.".

TITLE II—OTHER PROVISIONS

SEC. 201. WORK-STUDY AMENDMENTS.

(a) TECHNOLOGY TRAINING TREATED AS COMMUNITY SERVICE.—Section 441(c) of the Higher Education Act of 1965 (20 U.S.C. 2751(c)) is amended—

(1) in paragraph (1), by inserting "technology training," after "literacy training,"; and

(2) in paragraph (4)(A), by inserting before the semicolon at the end the following: ", including tutoring teachers in the uses of classroom technology".

(b) ADDITIONAL SPENDING FOR TECHNOLOGY TRAINING.—Section 443(b)(2)(B) of such Act (20 U.S.C. 2753(b)(2)(B)) is amended—

(1) by striking "7 percent" and inserting "10 percent";

(2) by inserting "(i)" after "shall ensure that"; and

(3) by inserting after "requirement of this subparagraph" the following: ", and (ii) at least 3 percent of the total amount of funds granted to such institution under this section for such fiscal year is used to compensate students employed in technology training or tutoring teachers in the uses of classroom technology (or both),".

SEC. 202. STUDY.

The Secretary of Commerce, in consultation with other Government agencies, appropriate organizations, and private businesses and corporations, shall conduct a study of—

(1) the feasibility and effectiveness of various incentives, including tax credits, for corporations and businesses to provide—

(A) personnel with regular compensation for time spent as volunteers engaged in the technological training of teachers; and

(B) facilities for the provision of such training of teachers;

(2) alternative methods of providing financial support, through income tax credits, loan forgiveness, or otherwise, to individuals seeking training or retraining in mathematics, science, and technology education;

(3) the effectiveness of colleges and universities in training teachers who are able to use technology and able to integrate technology into lesson plans and curricula, including distance learning;

(4) methods to coordinate a working alliance at various levels of government between the business and academic community; and

(5) additional means of improving the efficiency of the technological training of teachers.

SEC. 203. REPORT TO CONGRESS.

Not later than one year after the date of the enactment of this Act, the Secretary of Commerce shall transmit to the Congress a report outlining the results of the study conducted under section 202. Such report shall include proposals for a comprehensive approach to providing

technologically competent teachers to our Nation's schools. With respect to any objectives described in paragraphs (1) though (5) of section 202 that the Secretary determines are feasible and effective, such report shall include a plan for the accomplishing such objectives.

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